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# Flood Cleanup

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## Health Tips

MONTANA DEPARTMENT OF HEALTH  
& ENVIRONMENTAL SCIENCES  
ENVIRONMENTAL SCIENCES DIVISION  
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MONTANA STATE DEPARTMENT OF HEALTH  
AND  
ENVIRONMENTAL SCIENCES

In order to provide one convenient source of emergency health information for those who must return to, live in, and salvage flood-stricken homes, the Montana Department of Health and Environmental Sciences has summarized in this brochure information released by various state and national agencies, as well as the health department's recommendations.

#### DISINFECTING WATER

All water possibly contaminated by flooding must be disinfected, whether from wells or springs.

Drinking water may be treated by one of the following methods.

1. Boil water for five minutes in a clean container. The flat taste can be eliminated by shaking the water in a bottle or pouring it from one container to another.
2. Mix one-half teaspoon of liquid commercial laundry bleach with 2½ gallons of water and let stand for at least five minutes before drinking.
3. Add two drops of tincture of iodine solution to one quart of water. After mixing thoroughly, allow to stand for at least 30 minutes before drinking.

Once flood waters have receded, wells, springs or cisterns should be adequately protected against all known sources of contamination before disinfecting the supply. To disinfect, mix two quarts of liquid commercial bleach with ten gallons of water and pour the contents down the well. Replace well cover and turn on the water tap until there is an odor of chlorine. Turn off the water and do not use it for eight hours. Then open all taps and spigots and flush out the chlorine. Keep flushing until the chlorine odor has disappeared.

#### SALVAGING DAMAGED FOODS

To prevent diarrheal diseases and dysentery, the following items should be destroyed if they have been exposed to flood waters: fresh meats and poultry; prepared and processed foods; home canned foods; medicines and cosmetics; packages that are not hermetically sealed (airtight), including flour, packaged frozen foods and other commodities in bags.

Throw out foods needing refrigeration if the refrigerator has been out for more than six hours. Don't refreeze frozen foods which have been thawed. Throw them out if they've been thawed more than four hours.

Since seepage can carry harmful bacteria into all but airtight containers, the contents of crown-capped bottles, screw-top glass containers (including canned food in glass jars) should be destroyed. Sealed metal cans if punctured, bulging or leaking are unsafe.

If airtight cans are in good condition, they can be salvaged. But they must be carefully cleaned and disinfected before using the contents.

Follow this procedure:

1. Remove labels. Keep the same kinds of foods together, or mark them in a way that will enable you to identify them after disinfection. Colored crayon or adhesive tape may be used.
2. Wash cans in warm water containing soap or detergent.
3. Soak the cans for at least one minute in a disinfecting chlorine solution made by mixing four tablespoons of liquid chlorine bleach with two gallons of water. Rinse in clean, cool water that has been boiled for at least five minutes.

#### CLEANING CLOTHING AND BEDDING

Since disease-producing bacteria often carried by floodwaters can remain alive for long periods in and on fabrics, care in laundering clothing and bedding is essential.

First, brush off all dirt, and if mud-stained, rinse in cool water until as much mud as possible is removed. Then wash as usual, using enough detergent to keep soil from redepositing on fabrics.

The use of a disinfectant in the rinse water is especially recommended to destroy bacteria. Two types of disinfectants are effective, such as Lysol and chlorine (liquid chlorine bleach).

Mattresses soaked with floodwater should be discarded since reconditioning is too difficult to be done at home.

However, foam rubber pillows, if left in their covers, may be washed and air dried. Do not use an automatic drier or drycleaning solution.

#### ENTERING DAMAGED BUILDINGS

If there are any doubts about the safety of a building which has been flooded, do not enter it. Seek professional advice first.

When you do enter a damaged building, check it for buckled walls, loose bricks, cracks or any shifting of the foundation.

Do not pump flooded basements out too quickly, because the water-saturated ground around the basement could push the walls in.

Follow the instructions of your utility company concerning the restoration of gas or electrical service.

## IMMUNIZATIONS

There is no indication for typhoid immunization in the current flood emergency. Typhoid immunization requires about six weeks to become effective. Immediate protection from diarrheal diseases can best be provided by using only water which has been boiled for five minutes or treated chemically.

Tetanus toxoid is needed only on the recommendation of the attending physician in the case of an actual injury or wound. The flood itself imposes no additional risk of tetanus.

## PERSONAL HYGIENE

Several simple rules of personal cleanliness should be followed:

1. Wash hands with soap and water after using the toilet or participating in flood clean-up and handling flood-contaminated articles.
2. Use boiled or disinfected water for brushing teeth.

## SAFETY PRECAUTIONS

During the urgency of clean-up time, people are often inclined to overlook proper safety measures. Below are a few reminders:

1. Set priorities, accomplish the vital tasks first and avoid physical overexertion.
2. Regardless of the crisis, be sure children are safe and being cared for at all times. Never leave them alone or allow them to play in flood-damaged buildings or areas that might be unsafe.
3. Give special attention to cleaning children's toys, cribs, playpens and play equipment. Items a baby or toddler may put in his mouth should be boiled. Discard all stuffed toys and those that are not easily cleaned or are water logged.
4. Keep chemicals used for disinfection and poisons for insect and rodent control out of reach of children.
5. Wear protective clothing covering limbs, feet and hands while cleaning up debris and rubber gloves which scrubbing flood-damaged interiors and furniture.
6. Be sure electrical appliances are dry and in good condition before using.

## MEDICINES

Discard all medicines exposed to flood waters and have all needed prescriptions refilled as soon as possible.

## CLEANING OF COOKING AND EATING UTENSILS

Dishes, pots, and pans that have been covered by flood waters should be carefully washed and disinfected before use. Wash everything in hot, soapy water using a brush, if necessary, to remove dirt. Rinse everything thoroughly in safe water, then disinfect by immersing for one minute in a chlorine solution made up of four tablespoons of liquid household bleach in two gallons of water.

Pots and pans can be sterilized by boiling for at least ten minutes. Dishes with deep cracks should be thrown away.

## FOOD PREPARATION

Here are a few hints to insure safe and easier meals:

1. Boil for five minutes all water used for food preparation.
2. Wash hands and cooking utensils in a disinfecting solution made by mixing one-half teaspoon of liquid commercial laundry bleach with 2½ gallons of water.
3. Conserve fuel, water and energy, as well as the number of cooking and serving utensils, by preparing casseroles and one-dish meals, such as stews, pot roasts and thick, nourishing soups.
4. Save the liquids of canned vegetables. Substitute them for water in recipes for soups, stews and other cooked dishes.
5. Drain and save juices from canned fruits. They may be mixed and combined with other canned fruit juices and used as beverages and in making gelatine salads or desserts, instead of scarce water.
6. If your oven is in working condition, use it to cook stews, vegetables and other foods. Oven cooking will require less attention and free you to do other tasks while the meal cooks.
7. If you lack refrigeration, cook only as much as can be eaten at one meal. If you have refrigeration, save time by preparing food for several meals in advance.
8. When purchasing formula ingredients, evaporated or dry skim milk for infants, be sure the containers are sealed. After opening in the home, be sure they are tightly covered to prevent contamination. In the absence of refrigeration, make up only enough formula for immediate use.

9. Avoid foods that are subject to quick spoilage and bacterial contamination, such as creamed foods, hash, custards and pies, salads and sandwiches mixed with mayonnaise or other perishables, unless refrigeration is available.
10. Hashes, croquettes, meat pies and ground meats are easily spoiled and contaminated. If used, they should be served promptly.
11. Avoid keeping prepared or cooked food at room temperature. Keep hot foods hot and cold foods cold.

In general, commercially canned and packaged foods are recommended:

1. Canned dried milk
2. Canned meats, fish, poultry
3. Canned or packaged staples
4. Canned fruits or vegetables
5. Canned juices
6. Packaged, dried or dehydrated foods
7. Canned or packaged biscuits, breads, crackers, cookies

## CITY-COUNTY HEALTH DEPARTMENT

Boiling water for 10 minutes is the most dependable method of disinfectant water!

### DISINFECTION OF SMALL QUANTITIES OF DRINKING WATER

#### Dosage of Chlorine Solution for Disinfecting Drinking Water

GALLONS OF WATER

Liquid Laundry Bleach -  
Purex, Chlorox, White Magic, etc.

Clear Water

Cloudy Water

1/4 (one quart) . . . . .	1 drop . . . . .	DOUBLE AMOUNT
1 . . . . .	4 drops . . . . .	
5 . . . . .	1/4 teaspoon . . . . .	

### DISINFECTION OF CISTERNS

Disinfect water placed in cisterns to be used for drinking as follows:

1 2/3 Tablespoons liquid laundry bleach or 1 Teaspoon chlorinated lime per 100 gallons; or 1/2 pint liquid laundry bleach or 3 Tablespoons chlorinated lime per 1000 gallons. Increase these dosages if distinct chlorine taste is not observed.

### DISINFECTION OF WELLS

1. Well should be pumped until water is clear.
2. Disinfecting chemical shall be introduced into well pipe, per following table:

Diameter of Well	Gallons of Water Per Foot Depth (Approximate)	Ounces of Chlorinated Lime	Purex or Chlorox
6 inches	1.5	1/10	2 Teaspoons
1. foot	6.0	2/3	1/4 Cup
2 feet	23.5	1 1/2	1 Cup
3 feet	53.0	3 1/2	1 1/2 Cups
4 feet	94.0	6 1/4	3/4 Quart
5 feet	147.0	10	1 Quart
6 feet	212.0	14 1/2	1 1/2 Quart
7 feet	288.0	19 1/2	2 Quarts
8 feet	376.0	25	2 1/2 Quarts
9 feet	478.0	31 1/2	3 Quarts
10 feet	587.0	39 1/2	4 Quarts

3. Allow chemical to remain in well and pipe lines for at least 12 hours.
4. Pump well until chlorinous taste and odor is no longer present. Where pressure system is installed, clean water should be pumped through all connecting lines. Be sure that the water is still clear.
5. Collect water samples for bacteriological tests. (Bottles available at the City-County Health Office.)

After well has been pumped clear, water may be used for drinking providing it has been boiled. Nothing but boiled water should be used for drinking until a satisfactory test has been made.

## PROCEDURE FOR CLEANING UP AFTER FLOOD

All food containers such as cans and bottles which have been touched by the flood must be examined to see if they are still water-tight. If there is any indication that the water has gotten inside them, the container and the food must be thrown out. If the container is still water-tight, it must be sterilized before the contents are taken out. This can be done by soaking the container in a chlorine solution made up of calcium hypochlorite and water in the proportions mentioned on the label.

Fresh fruits, vegetables and meats which have been touched by the flood waters should be destroyed. Fruits and vegetables that are protected by an impervious skin or peel may be used if they are washed with soap and water, rinsed in clear water and then dipped in chlorine solution.

Chlorine products can be obtained from dairy plants and from feed, hardware, drug and general stores under such trade names as Lo-Bax, HTH-15 and BK. Directions on the labels of the containers should be followed. If you have trouble obtaining any of the chemicals mentioned, contact your local health department.

Clean the building of all silt and refuse left by the flood. After dirt has been removed all wall and floor areas which have been touched by the flood water should be washed down with washing powder (not soap) and then rinsed with a chlorine solution. If the presence of "Flood smell" remains the building has not been thoroughly disinfected. Care should be taken to wash chlorine solution from any metal objects 15 minutes after it has touched them to prevent rusting.

CITY-COUNTY HEALTH DEPARTMENT

EMERGENCY HOME SANITATION

- \* PERSONAL HYGIENE, PARTICULARLY HANDWASHING IS ONE OF THE MOST IMPORTANT MEASURES FOR PREVENTING ILLNESS FROM FLOOD CONTAMINATION. ALWAYS WASH HANDS BEFORE EATING!
- \* DO NOT USE CONTAMINATED WATER OR WATER UNKNOWN AS TO SAFENESS FOR ANY DOMESTIC USE, INCLUDING COOKING, DRINKING, BATHING, BRUSHING OF TEETH ETC., UNTIL IT HAS BEEN TREATED
- \* PERSONS ON CONTAMINATED COMMUNITY WATER SYSTEMS SHOULD BOIL THE WATER OR TREAT WITH CHLORINE (LAUNDRY BLEACH) UNTIL OFFICIAL NOTICE IS GIVEN THAT THE WATER SUPPLY IS SAFE.
- \* DISCARD FOODS WHICH HAVE COME IN CONTACT WITH FLOOD WATER.

--Any food commodity in a container having a screw top or crimped top lid--including bottles closed with these devices--which have been submerged or exposed to flood waters should be discarded immediately.

--Any food in absorbent containers--breakfast foods, bags of sugar and flour or foods in pasteboard cartons which have been exposed or submerged--also should be discarded.

--Any time there is any doubt about any food item, it should be discarded immediately.

--Food, commercially heat-processed in metal cans, should be checked and the cans cleaned and sanitized with a disinfectant solution made of laundry bleach in a quantity of two tablespoons of bleach to 5 gallons of water. Cans should be treated in the solution for at least two minutes.

--Vegetables, (potatoes, etc.) should be discarded.

- \* ALL EATING AND DRINKING UTENSILS SHOULD BE SANITIZED BESIDES BEING THOROUGHLY CLEANED. A SOLUTION OF TWO TABLESPOONS OF LAUNDRY BLEACH TO FIVE GALLONS OF WATER IS RECOMMENDED AS A SANITIZING SOLUTION.
- \* WASH SOLUTION FOR LAUNDRYING CLOTHES, BEDDING, ETC, SHOULD INCLUDE A DISINFECTANT. LAUNDRY BLEACH OR SIMILAR COMPOUNDS MAY BE USED. FOLLOW DIRECTIONS ON CONTAINERS.
- \* ARTICLES WHICH CAN'T BE WASHED EASILY, SUCH AS MATTRESSES AND PILLOWS, SHOULD BE CLEANED ON THE OUTSIDE AND THEN ALLOWED TO DRY, PREFERABLY IN THE SUN. A MATTRESS MAY TAKE SEVERAL WEEKS OR MORE TO DRY, HOWEVER.
- \* INSIDE SURFACES OF HOMES CONTAMINATED BY FLOOD WATERS SHOULD BE WASHED DOWN WITH A GOOD DETERGENT SOLUTION. LAUNDRY BLEACH SHOULD BE USED IN FINAL WASH SOLUTIONS.





